



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,190	03/24/2005	Matthias Maase	266596US0PCT	4355
22850 7590 07/09/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER SHIAO, REI TSANG	
			ART UNIT 1626	PAPER NUMBER
			NOTIFICATION DATE 07/09/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

## Office Action Summary

Application No.

10/529,190

Applicant(s)

MAASE ET AL.

Examiner

Rei-tsang Shiao, Ph.D.

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 7-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/24/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This application claims benefit of the foreign application:  
GERMANY 102 44 684 with a filing date 09/24/2002.
2. Claims 1-11 are pending in the application.

### *Responses to Election/Restriction*

3. Applicant's election with traverse of election of Group I claims 1-6, in part, in the reply filed on May 30, 2007 is acknowledged.. Election of a single disclosed species, of the compound of Example 2 is also acknowledged. The traversal is on the grounds that restriction is only proper if the claims of the restricted groups are independent or patentably distinct and there would be a serious burden placed on the Examiner if restriction is not required, and MPEP §803 is cited.

This is found persuasive, in part, and the reasons are given *infra*.

Claims 1-11 are pending in the application. The scope of the invention of the elected subject matter is as follows.

Claims 1-6, in part, drawn to processes of making compounds of formula (II), wherein when the variable R<sup>1</sup> represents heterocycle and the heterocycle is selected from 3-furyl, 2 or 3-thiophenyl, 2 or 3-pyrrolyl or dimethylpyrrolyl thereof, the variables R<sup>2</sup>-R<sup>3</sup> independently do not represent heterocycle, the variable R<sup>2</sup>-R<sup>3</sup> independently are not substituted with heterocycle.

The claims 1-11 herein lack unity of invention under PCT rule 13.1 and 13.2 since the compounds defined in the claims lack a significant structural element

Art Unit: 1626

qualifying as the special technical feature that defines a contribution over the prior art, see Leppard et al. US 5,399,770. Leppard et al. disclose similar phosphine oxide compounds as the instant invention. Accordingly, unity of invention is considered to be lacking and restriction of the invention in accordance with the rules of unity of invention is considered to be proper. Furthermore, even if unity of invention under 37 CFR 1.475(a) is not lacking, which it is lacking, under 37 CFR 1.475(b) a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations:

- (1) A product and a process specially adapted for the manufacture of said product, or
- (2) A product and a process of use of said product; or
- (3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or
- (4) A process and an apparatus or means specifically designed for carrying out the said process; or
- (5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

And, according to 37 CFR 1.475(c)

if an application contains claims to more or less than one of the combinations of categories of invention set forth in paragraph (b), unity of invention might not be present.

However, it is noted that unity of invention is considered lacking under 37 CFR 1.475(a) and (b). Therefore, since the claims are drawn to more than a product, and according to 37 CFR 1.475 (e)

the determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.

The claims lack unity of invention and should be limited to only a product, or a

process for the preparation, or a use of the said product. In the instant case, Groups I-III and IV-VI are drawn to various processes for making various products, and the final products do not contain a common technical feature or structure, and do not define a contribution over the prior art, i.e., similar phosphine oxide compounds. Moreover, the examiner must perform a commercial database search on the subject matter of each group in addition to a paper search, which is quite burdensome to the examiner.

Claims 1-6, in part, embraced in above elected subject matter, are prosecuted in the case. Claims 1-6, in part, not embraced in above elected subject matter, and claims 7-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

The requirement is still deemed proper.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, line 2 or 4, respectively recites the limitation "Friedel-Crafts catalyst" or "Arbusov catalyst", fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims must stand alone to define invention, and incorporation into claims by express reference to specification is not permitted, are

properly rejected under 35 U.S.C. 112, second paragraph, see *Ex parte Fressola*, No. 93-0828. Incorporation of the limitation of "Friedel-Crafts catalyst" or "Arbusov catalyst" (i.e., named compounds) into claim 4 respectively would obviate the rejection.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hennig et al. CAS: 108:37955 or Lindner et al. CAS: 95: 115668.

Applicants claim a process of making phosphine oxide of formula (II) by converting carboxy phosphine of formula (I), see claim 1. Dependent claims 2-6 further limit a number of reaction conditions, i.e., the reaction is operated in the absence or presence of a catalyst.

Hennig et al. disclose processes of making dibenzoyloxy Me phosphine oxide or dibenzoyloxy Ph phosphine oxide by converting dibenzoyloxy Me phosphine or dibenzoyloxy Ph phosphine, see reaction scheme (1) or (2). Therefore Hennig et al. processes meet the required elements of the instant invention for preparing phosphine oxide of formula (II), wherein the variable R1 represents aryl (i.e., phenyl), the variable R2 represents alkyl (i.e., methyl) or aryl (i.e., phenyl) and the variable R3 represents aryl (i.e., phenyl) substituted by heteroatom (i.e., O) or –O-cation.

Lindner et al. disclose processes of making phosphine oxide by converting phosphine, see reaction scheme (1). Therefore Lindner et al. processes meet the required elements of the instant invention for preparing phosphine oxide of formula (II), wherein the variable R1-R3 independently represents aryl (i.e., phenyl).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being obvious over Leppard et al. US 5,399,770.

Applicants claim a process of making phosphine oxide of formula (II) by converting carboxy phosphine of formula (I), see claim 1. Dependent claims 2-6 further limit a number of reaction conditions, i.e., the reaction is operated in the absence or presence of a catalyst.

**Determination of the scope and content of the prior art (MPEP §2141.01)**

Leppard et al. disclose a process of making phosphine oxide compound of the

formula 
$$R_1-P(=O)-\left(C(=O)-R_2\right)_2$$
 by converting phosphine compounds of the formula

$$R_1-P-\left(C(=O)-R_2\right)_2$$
 (IV), see lines 15-40 in column 2.

**Determination of the difference between the prior art and the claims (MPEP §2141.02)**



The difference between the instant claims and Leppard et al. is that Leppard et al. is silent on the use of catalyst of the instant invention. Leppard et al. processes overlap with the instant invention.

**Finding of prima facie obviousness-rational and motivation (MPEP §2142-2143)**

One having ordinary skill in the art would find the instant claims 1-6 prima facie obvious **because** one would be motivated to employ the processes of Leppard et al. to obtain the instant processes for preparing phosphine oxide of formula (II) by converting carboxy phosphine of formula (I).

The motivation to obtain the claimed processes derives from known Leppard et al. processes would possess similar yields to that which is claimed in the reference.

***Claim Objections***

8. Claims 1-6 are objected to as containing non-elected subject matter, i.e., heterocycle, etc. It is suggested that applicants amend the claims to the scope of the elected subject matter as defined on pages 2-3 *supra*.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rei-tsang Shiao whose telephone number is (571) 272-0707. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rei-tsang Shiao, Ph.D.  
Patent Examiner  
Art Unit 1626

June 28, 2007